UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,054	06/15/2005	Hiroshi Yokoyama	1806.1007	4255

21171 7590 12/23/2008

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
HEINCER, LIAM J	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
12/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,054	YOKOYAMA ET AL.	
	Examiner	Art Unit	
	Liam J. Heincer	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (WO 99/11709) in view of Scardino et al. (US 2002/0032302).

Considering Claims 1 and 2: Kato et al. teaches a polytrimethylene terephthalate (1:5-14) resin with an intrinsic viscosity of up to 0.81 dl/g (10:34-37) with a specific example of 0.7 dL/g (Example 2); a cyclic dimer content of less than 2% by weight (abstract) with an example of 1.7% (Example 2) and a b value of 6.2 (Example 2).

Kato et al. also teaches a method for producing a polytrimethylene terephthalate comprising providing a molten trimethylene terephthaltate resin that is made of 100% trimethylene terephthalate units (8:55-9:6) with a viscosity of up to 0.80 dL/g (10:34-37) with a specific example of 0.70 dL/g (example 2); and processing the resin at reduced pressure of less than 0.5 torr/0.06 kPa in the melt phase (8:55-9:6). Kato et al. also teaches the resin as being made with a titanium catalyst (9:24-31) in the presence of a

phosphate (6:11-30). As disclosed in the original specification (page 121) this will produce a resin with the desired E value of less than 0.033.

Kato et al. does not teach the devolitalization as occurring during the melt phase. However, Scardino et al. teaches the removing cylcic dimers from the melt polycondensation phase at reduced pressure (¶0012). Kato et al. and Scardino et al. are analogous art as they are concerned with a similar technical difficulty, namely removing cyclic dimers from a polytrimethylene terephthlate resin. It would have been obvious to a person having ordinary skill in the art at the time of invention to have removed the dimer in the melt phase as in Scardino et al. in the process of Kato et al., and the motivation to do so would have been to eliminate the need for an extra solid phase devolitalization step, thus reducing process time and cost.

The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients and the same process as disclosed in instant claims. Therefore, the claimed effects and physical properties, i.e. the molecular weight distribution, L value, and cryastallinity would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (WO 99/11709) in view of Scardino et al. (US 2002/0032302).
Considering Claims 3, 4, 6, and 7: Kato et al. teaches a method for producing a polytrimethylene terephthalate comprising providing a molten trimethylene terephthaltate resin that is made of 100% trimethylene terephthalate units (8:55-9:6) with a viscosity of up to 0.80 dL/g (10:34-37) with a specific example of 0.70 dL/g (example 2); and processing the resin at reduced pressure of less than 0.5 torr/0.06 kPa in the melt phase (8:55-9:6). Kato et al. also teaches the resin as being made with a tinatium catalyst (9:24-31) in the presence of a phosphate (6:11-30). As disclosed in

the original specification (page 121) this will produce a resin with the desired E value of less than 0.033.

Kato et al. does not teach the devolitalization as occurring during the melt phase. However, Scardino et al. teaches the removing cylcic dimers from the melt polycondensation phase at reduced pressure (¶0012). Kato et al. and Scardino et al. are analogous art as they are concerned with a similar technical difficulty, namely removing cyclic dimers from a polytrimethylene terephthlate resin. It would have been obvious to a person having ordinary skill in the art at the time of invention to have removed the dimer in the melt phase as in Scardino et al. in the process of Kato et al., and the motivation to do so would have been to eliminate the need for an extra solid phase devolitalization step, thus reducing process time and cost.

The claim is directed to a process. Therefore the claim is interpreted by the steps preformed not necessarily the apparatus used to perform the step. Therefore the above combination is considered to teach the claimed limitations as it provides a step of removing the dimer through evaporation as claimed even though it is silent as to the apparatus used.

Considering Claim 5: Kato et al. does not teach the process as being continuous. However, Scardino et al. teaches making the resin with a continuous process (¶0014). It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the continuous process of Scardino et al. in the process of Kato et al., and the motivation to do so would have been to increase the efficiency of the process. See MPEP 2144.04 (V).

The claim is directed to a process. Therefore the claim is interpreted by the steps preformed not necessarily the apparatus used to perform the step. Therefore the above combination is considered to teach the claimed limitations as it provides a step of continuously performing the polycondensation and separation as claimed even though it is silent as to the apparatus used.

Considering Claim 8: Kato et al. teaches a tin catalyst as being used in the prior art (2:33-36). It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the tin catalyst of the prior art in the process of Kato et

al., and the motivation to do so would have been, as Kato et al. suggests, the polymerization rate is higher when using tin catalysts than titanium catalysts (2:36-39).

Double Patenting

Claims 1-8 directed to an invention not patentably distinct from claims 1 and 9 of commonly assigned US Patent 7,198,846. Specifically, see rejection below.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 9 of U.S. Patent No. 7,198,846 in view of Kato et al. (WO 99/11709) and Scardino et al. (US 2002/0032302).
Considering Claims 3-8: Claim 9 of US Patent '846 teaches providing a moleten trimethylene terephthlate resin with an intrinsic viscosity of from 0.2 to 2 dL/g and polymerizing the resin in the melt phase under reduced pressure (Claim 8) by continously feeding the crude resin to a polymerization reaction zone (Claim 9) using the guide wetting fall process at a temperature higher than the cyrstalline melting point but lower than 290 °C so that polymerization is affected during the fall (Claim 8).

Claim 9 of US Patent '846 does not teach the claimed E value. However, Kato et al. teaches a trimethylene terephthlate resin as being made with a tinatium catalyst (9:24-31) in the presence of a phosphate (6:11-30). As disclosed in the original specification (page 121) this will produce a resin with the desired E value of less than 0.033. Claim 9 of US Patent '846 and Kato et al. are analogous art as they are concerned with the same field of endeavor, namely the production of trimethylene terephthlate resins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the catalysts of Kato et al. in the process of Claim 9 of US Patent '846, and the motivaiton to do so would have been, as Kato et al. suggests, to increase the whiteness and melt stability of the resin (4:10-20).

Claim 9 of US Patent '846 does not teach the devolitalization as occurring during the melt phase. However, Scardino et al. teaches the removing cylcic dimers from the melt polycondensation phase at reduced pressure (¶0012). Claim 9 of US Patent '846 and Scardino et al. are analogous art as they are concerned with a similar technical difficulty, namely removing cyclic dimers from a polytrimethylene terephthlate resin. It would have been obvious to a person having ordinary skill in the art at the time of invention to have removed the dimer in the melt phase as in Scardino et al. in the process of Claim 9 of US Patent '846, and the motivation to do so would have been to eliminate the need for an extra solid phase devolitalization step, thus reducing process time and cost.

The claim is directed to a process. Therefore the claim is interpreted by the steps preformed not necessarily the apparatus used to perform the step. Therefore the above combination is considered to teach the claimed limitations as it provides a step of removing the dimer through evaporation as claimed even though it is silent as to the apparatus used.

Considering Claims 1 and 2: Claim 9 of US Patent '846, Kato et al., and Scardino et al. collectively teach the process of making the resin of claims 1 and 2. Since US Patent '846 teaches a resin made by this process in claim 1, the resin of claim 1 of US Patent '846 would implicitly have the properties claimed in the instant claims 1 and 2.

Response to Arguments

Applicant's arguments filed September 23, 2008 have been fully considered but they are not persuasive, because:

A) Applicant's argument that there has been a long felt need to reduce the amount of cyclic dimer, as evidenced by Scardino et al., is not persuasive. In order to be persuasive, the long-felt need must not have been satisfied by another before the invention by applicant. *Newell Companies v. Kenney Mfg. Co.*, 864 F.2d 757, 768, 9 USPQ2d 1417, 1426 (Fed. Cir. 1988). See MPEP § 716.04. While Scardino et al. teaches that cyclic dimer content cannot be reduced below about 2.5 weight percent by the selection of catalysts (¶0015), this is contradicted by the disclosure of Kato et al. Kato et al. teaches that the amount of cyclic dimer can be reduced to amounts as low as 1.7 percent without the need for a solid state post polymerization, by using a phosphorous compound in conjunction with a titanium compound (Examples 1-7, Table 3). Therefore, as Kato et al. has shown that the amount of cyclic dimer can be reduced through the selection of the proper catalyst system, the long-felt need as identified in Scardino et al., has been satisfied by another prior to the applicant's invention.

In response to applicant's argument that Scardino et al. teaches that the cylic dimer content cannot be reduced, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or

all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

B) Applicant's argument that Scardino et al. teaches away from the instant invention is not persuasive. While Scardino et al. teaches that the cyclic dimer content cannot be reduced (¶0015), it does not teach that reducing the cyclic dimer content would be disadvantageous. While the reference does not identify a method for reducing the cyclic dimer content, there has been no showing that such a method, once identified would materially interfere with the functioning of the disclosed invention.

C) Applicant's argument they have identified the source of a problem, namely that the use of the solid-phase polymerization results in a return of the cyclic dimer during melt processing, is not persuasive. While a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified (See MPEP §2141.02), the claims are not commiserate in scope with the identified problem. Applicant has identified that the solid state polymerization is required in the art to reduce the cyclic dimer content to a level below 1% by weight (Applicant's arguments, page 8). However, the claims only require the cyclic dimer content to be reduced below 2%. Kato et al. has identified that resins with a cyclic dimer below 2% can be achieved without the use of solid state polymerization (Example 2, Table 1). Therefore applicant's discovery is not germane over the scope of the claim as a whole.

Additionally, applicant has indicated that "[f]or solving such problems accompanying the solid-phase polymerization process, there have been proposed various, improved melt polymerization processes" (Applicant's arguments, page 8). As the only problems identified are those that the applicant claims to have discovered, it would appear that the problem was known in the art prior to the invention. If it were not, solutions for solving the problem could not possibly be proposed.

D) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the properties of a shaped article made from the resin) are not recited in the

rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

E) Applicants argument that Kato et al. does not teach a intrinsic viscosity from 0.74 to 4 dl/g is not persuasive. Kato et al. teaches a polytrimethylene terephthalate resin with an intrinsic viscosity of up to 0.81 dl/g (10:34-37) can be produce without solid state treatment. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)

F) Applicants argument that Kato et al. does not recognize the critical importance of the claimed E-value falling within the claimed range is not persuasive. As discussed above Kato et al. also teaches the resin as being made with a tinatium catalyst (9:24-31) in the presence of a phosphate (6:11-30). As disclosed in the original specification (page 121) this will produce a resin with the desired E value of less than 0.033. Kato et al. teaches that this combination of phosphorous an the condensation catalyst is a required component of the invention (5:14-23 and 9:24-31). While Kato et al. does not use the same terminology as the original specification, namely "E-value", it clearly identifies the conditions that result in this property as being crucial to the invention.

G) Applicants argument that solid-phase polymerization is the most preferred embodiment of Kato et al. is not persuasive. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied,* 493 U.S. 975 (1989). See MPEP § 2123. Even though Kato et al. reports the best properties when using a solid state polymerization step (Table 1, Example 8), the disclosed invention is not limited to this embodiment. Kato et al. additionally disclosed several emodiments without the solid-polymerization step (Examples 1-7) which are clearly identified as being examples of the disclosed

invention. Thus, a person having ordinary skill in the art at the time of invention would not have considered the solid-phase step as being a required element of the invention.

Additionally, the applicant's citation of the text of the first office action is not germane, as this rejection has already been withdrawn in response to the applicants arguments in the previous action (page 7). As the basis for rejection has been changed and the previous rejection is no longer outstanding, arguments pertaining to this rejection are not germane.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/ LJH
Supervisory Patent Examiner, Art Unit 1796 December 8, 2008